

## Chemical Safety Data Sheet MSDS / SDS

## 2-methoxy-2-methylbutane SDS

Revision Date:2024-04-25 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name: 2-methoxy-2-methylbutane

CAS: 994-05-8

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses: For R&amp;D use only. Not for medicinal, household or other use.

Uses advised against: none

**Company Identification**

Company: Chemicalbook.in

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**SECTION 2: Hazards identification****Classification of the substance or mixture**

Flammable liquids, Category 2

Acute toxicity - Category 4, Oral

Specific target organ toxicity - single exposure, Category 3

### GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

### Hazard statement(s)

H225 Highly flammable liquid and vapour

H302 Harmful if swallowed

H336 May cause drowsiness or dizziness

### Precautionary statement(s)

### Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

### Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

P370+P378 In case of fire: Use ... to extinguish.

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P319 Get medical help if you feel unwell.

### Storage

P403+P235 Store in a well-ventilated place. Keep cool.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

#### **Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

#### **Other hazards which do not result in classification**

no data available

### **SECTION 3: Composition/information on ingredients**

#### **Substance**

Chemical name: 2-methoxy-2-methylbutane

Common names and synonyms: 2-methoxy-2-methylbutane

CAS number: 994-05-8

EC number: 213-611-4

Concentration: 100%

### **SECTION 4: First aid measures**

#### **Description of necessary first-aid measures**

##### **If inhaled**

Fresh air, rest.

##### **Following skin contact**

Remove contaminated clothes. Rinse and then wash skin with water and soap.

##### **Following eye contact**

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

##### **Following ingestion**

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

#### **Most important symptoms/effects, acute and delayed**

no data available

#### **Indication of immediate medical attention and special treatment needed, if necessary**

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Esters and related compounds

### **SECTION 5: Firefighting measures**

#### **Suitable extinguishing media**

Foam, alcohol-resistant foam, dry powder, carbon dioxide ... Keep drums, etc., cool by spraying with water.

#### **Specific hazards arising from the chemical**

Extremely flammable. Vapour/air mixtures are explosive.

#### **Special protective actions for fire-fighters**

Use foam, alcohol-resistant foam, dry powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

### **SECTION 6: Accidental release measures**

#### **Personal precautions, protective equipment and emergency procedures**

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer. Do NOT let this chemical enter the environment.

#### **Environmental precautions**

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer. Do NOT let this chemical enter the environment.

#### **Methods and materials for containment and cleaning up**

Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapors.

### **SECTION 7: Handling and storage**

#### **Precautions for safe handling**

NO open flames, NO sparks and NO smoking. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

#### **Conditions for safe storage, including any incompatibilities**

Fireproof. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

### **SECTION 8: Exposure controls/personal protection**

#### **Control parameters**

#### **Occupational Exposure limit values**

TLV: 20 ppm as TWA

#### **Biological limit values**

no data available

#### **Appropriate engineering controls**

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

**Individual protection measures, such as personal protective equipment (PPE)**

**Eye/face protection**

Wear safety spectacles.

**Skin protection**

Protective gloves.

**Respiratory protection**

Use ventilation, local exhaust or breathing protection.

**Thermal hazards**

no data available

**SECTION 9: Physical and chemical properties and safety characteristics**

Physical state:	Liquid.
Colour:	Colourless.
Odour:	no data available
Melting point/freezing point:	< -20 °C. Atm. press.:101.3 kPa.
Boiling point or initial boiling point and boiling range:	87.3 °C. Atm. press.:101.3 kPa.
Flammability:	Extremely flammable.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	-18 °C. Atm. press.:101.3 kPa.
Auto-ignition temperature:	430 °C. Atm. press.:101.3 kPa.

Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	kinematic viscosity (in mm <sup>2</sup> /s) = 0.6. Temperature:20.5°C.;kinematic viscosity (in mm <sup>2</sup> /s) = 0.494. Temperature:40.5°C.
Solubility:	Very soluble ethyl ether, ethanol
Partition coefficient n-octanol/water:	log Pow = 1.55. Temperature:20 °C.
Vapour pressure:	9 100 Pa. Temperature:25 °C.
Density and/or relative density:	0.77 g/cm <sup>3</sup> . Temperature:15 °C.;0.77. Temperature:15 °C.
Relative vapour density:	(air = 1): 3.6
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

### Reactivity

no data available

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Highly flammableThe vapour is heavier than air.

### Conditions to avoid

no data available

**Incompatible materials**

Materials to avoid: strong oxidizing agents

**Hazardous decomposition products**

When heated to decomposition it emits acrid smoke and irritating vapors.

**SECTION 11: Toxicological information****Acute toxicity**

Oral: LD50 - rat (male) - 2 417 mg/kg bw.

Inhalation: LC50 - rat (male/female) - > 5 400 mg/m<sup>3</sup> air.

Dermal: LD50 - rabbit (male/female) - > 2 000 mg/kg bw.

**Skin corrosion/irritation**

no data available

**Serious eye damage/irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

no data available

**Reproductive toxicity**

no data available



### **STOT-single exposure**

If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. Exposure at high levels could cause lowering of consciousness.

### **STOT-repeated exposure**

The substance defats the skin, which may cause dryness or cracking.

### **Aspiration hazard**

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: LC50 - *Menidia beryllina* - 574 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: LC50 - *Americamysis bahia* (previous name: *Mysidopsis bahia*) - 14 mg/L - 96 h.

Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 230 mg/L - 72 h.

Toxicity to microorganisms: EC50 - *Pseudomonas putida* - 510 mg/L - 16 h. Remarks:Respiration rate.

### **Persistence and degradability**

AEROBIC: No biodegradation of tert-amyl methyl ether, present at 3,000 ug/L, was observed when incubated in soils with previous exposure to methyl tert-butyl ether(1). A rate of -40 mg/L/day was reported using acclimated activated sludge. A rate of 69 mg/L per day (0.09 g/g dry weight/day) was removed using upflow anoxic fixed bed reactors, a removal efficiency of >98%(2). tert-Amyl methyl ether did not pass the ready biodegradability test of 60% in 28 days using the Closed Bottle test(3).

### **Bioaccumulative potential**

An estimated BCF of 5 was calculated in fish for tert-amyl methyl ether(SRC), using a log Kow of 1.55(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

### **Mobility in soil**

The Koc of tert-amyl methyl ether has been reported to range from 19 to 160(1,2). According to a classification scheme(3), these Koc values suggest that tert-amyl methyl ether is expected to have very high to moderate mobility in soil. Using a model system simulating horizontal ground water flow in the saturated zone, consisting of only soil and water phases (an unconfined sand aquifer was selected as an example case), a Koc of 60 was calculated(4).

### **Other adverse effects**

no data available

## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## **SECTION 14: Transport information**

### **UN Number**

ADR/RID: UN3271 (For reference only, please check.)

IMDG: UN3271 (For reference only, please check.)

IATA: UN3271 (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: ETHERS, N.O.S. (For reference only, please check.)

IMDG: ETHERS, N.O.S. (For reference only, please check.)

IATA: ETHERS, N.O.S. (For reference only, please check.)

**Transport hazard class(es)**

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (For reference only, please check.)

**Packing group, if applicable**

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

**Environmental hazards**

ADR/RID: No

IMDG: No

IATA: No

**Special precautions for user**

no data available

**Transport in bulk according to IMO instruments**

no data available

**SECTION 15: Regulatory information****Safety, health and environmental regulations specific for the product in question****European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

**China Catalog of Hazardous chemicals 2015**

Not Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Not Listed.

**(PICCS)**

Listed.

**Vietnam National Chemical Inventory**

Not Listed.

**IECSC)**

Not Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

**SECTION 16: Other information**

**Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

## References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:  
[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:  
<http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

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